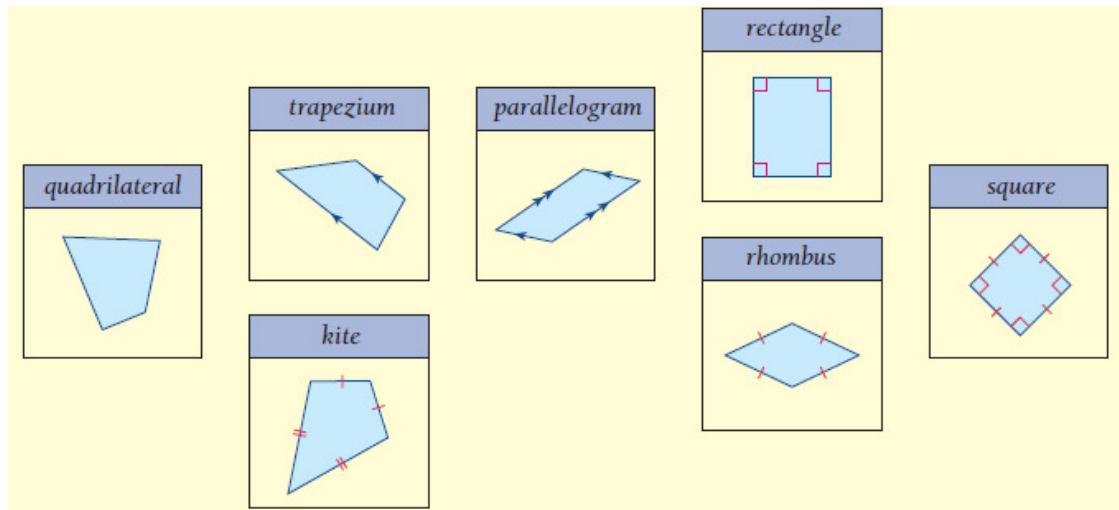


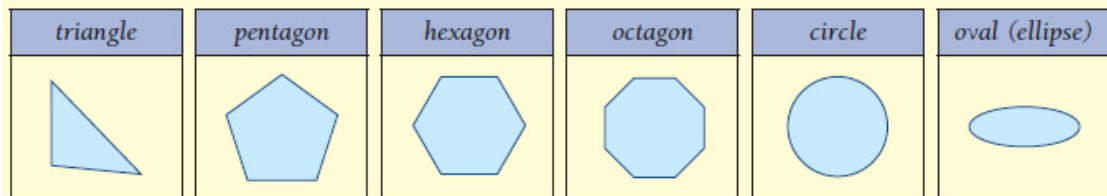
Plane Shapes (Ch7)

Below are some common 2 dimensional quadrilateral (4 sided) plane shapes.



Each member of this family is a special kind of each of the shapes on its left, eg a rhombus is a special parallelogram, trapezium, kite and quadrilateral. A parallelogram is a special trapezium and quadrilateral (but not a kite).

Other plane shapes include:



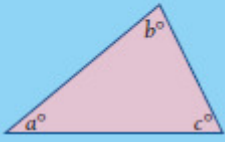

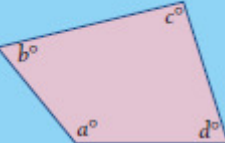
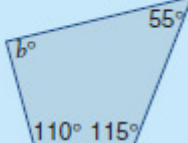

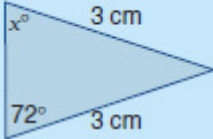
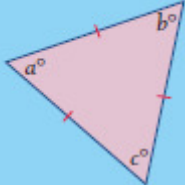
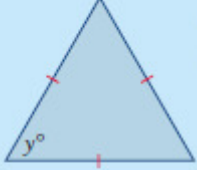
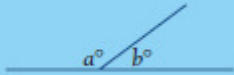

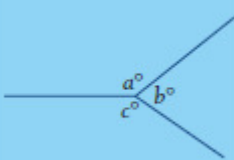
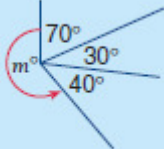
Shapes that have only straight sides are called polygons.

To the right are the different types of triangles. Any triangle can be more than one type. For example, an *acute angled isosceles triangle*.

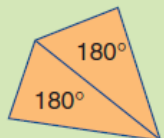
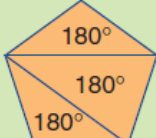
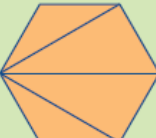
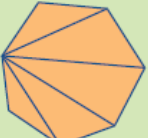
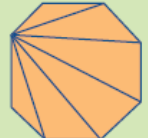
Scalene	Isosceles	Equilateral
<ul style="list-style-type: none"> No sides equal. No angles equal. 	<ul style="list-style-type: none"> Two sides equal. Angles opposite equal sides are equal. 	<ul style="list-style-type: none"> All sides equal. Three 60° angles.

Acute-angled	Right-angled	Obtuse-angled
<ul style="list-style-type: none"> All angles are acute. 	<ul style="list-style-type: none"> One angle is a right angle. 	<ul style="list-style-type: none"> One angle is obtuse.

Unknown angles can be found by using the properties listed below...

Figure	Rule	Example
	triangle $a^\circ + b^\circ + c^\circ = 180^\circ$	 Find the value of a . $a + 50 + 70 = 180$ $a + 120 = 180$ $\therefore a = 60$
	quadrilateral $a^\circ + b^\circ + c^\circ + d^\circ = 360^\circ$	 Find the value of b . $b + 55 + 115 + 110 = 360$ $b + 280 = 360$ $\therefore b = 80$
	isosceles triangle $a^\circ = b^\circ$	 Find the value of x . This is an isosceles triangle since two sides are equal. $\therefore x = 72$
	equilateral triangle $a^\circ = b^\circ = c^\circ$	 Find the value of y . This is an equilateral triangle as all sides are equal. \therefore All angles are equal. $3y = 180$ $y = 60$
	straight angle $a^\circ + b^\circ = 180^\circ$	 Find the value of y . $135 + y = 180$ $\therefore y = 45$
	angles at a point $a^\circ + b^\circ + c^\circ = 360^\circ$	 Find the value of m . $m + 70 + 40 = 360$ $m + 140 = 360$ $\therefore m = 220$

The angle sum of any polygon can be found by using the pattern described below...

Polygon					
Number of sides	4	5	6	7	8
Number of triangles	2	3	4		
Angle sum of polygon	$2 \times 180^\circ = 360^\circ$	$3 \times 180^\circ = 540^\circ$	$4 \times 180^\circ =$		